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III. Remarks

Applicant is grateful to Examiner Nguyen and Examiner Kincaid for their time in the telephone interview of May 7, 2004 in which the Duncan and Pasquali references, Claim 1 and programmable logic controllers (PLCs) were discussed generally. Per their recommendation, Applicant is filing this after-final response for the Examiner's consideration.

A. Rejection under 35 U.S.C. § 103

The Final Action rejects independent Claims 1, 9, 17 and 20 as being obvious from U.S. Patent No. 5,917,483 to Duncan et al. (hereinafter, Duncan) in view of U.S. Patent No. 6,535,882 to Pasquali et al. (hereinafter, Pasquali). Applicant has again carefully considered this rejection and submits that the Examiner has misconstrued what is claimed in the aforementioned claims and/or the nature of the disclosures of the cited references. Reconsideration and withdrawal of this rejection are respectfully requested in view of the following arguments.

Applicant would like to first address Claim 1. Claim 1 is directed to a method of programming a programmable logic controller (PLC). The PLC includes a plurality of inputs and outputs and directs a process through the output signals at the outputs in response to input signals at the inputs. The claimed method recites, among other things, four steps for programming the PLC. The claimed method is best understood with reference to FIGS. 2 and 3 of the application. FIG. 2 shows a graphical user interface that allows a programmer to select inputs and outputs for the PLC for a series of sequential steps to be preformed in a process, such as an assembly process. The selections are converted to an input control table and an output control data table that can then be provided to a PLC, which performs the sequential steps according to the programmed data in the control tables.

In rejecting Claim 1, the Examiner first cites to Duncan. Respectfully, the citation of Duncan by the Examiner may evidence a misunderstanding of PLCs. Referring to Paragraph [00002] of Applicant's disclosure, Programmable Logic Controllers (PLCs) are "special data processors that are often used as controllers for machines in industrial processes. A PLC is

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typically programmed with a sequential program for controlling a machine, such as a pressing or marking machine, that continuously repeats the same motions during, for example, an automated assembly process or other manufacturing process." The disclosure of Duncan is directed to a windows management system that enables a user to customize the display of several application programs in a single window. (Column 2, Line 59-Column 3, Line 1). The process of Duncan is best illustrated by comparing FIGs. 1, 2a and 2b at Duncan. FIG. 1 shows three application programs (Editor "A", "B" and "C") opened in a windows environment as separate windows. FIG. 2a illustrates a single display window including Editors A and B created using the process of Duncan. FIG. 2b illustrates a single display window including Applications A, B and C created using the process of Duncan. Creating a single window for several applications presumably helps the user manage the desktop environment.

Simply, it is patently clear that Duncan provides no disclosure relating to programming a PLC, and indeed no disclosure even mentioning PLCs. A search of Duncan reveals no references to "PLC", "programmable", "logic" or "controller". In the rejection, the Examiner cites solely to Column 3, Lines 30-40 for support for Duncan teaching a programming interface for a PLC. The section of Duncan cited by the Examiner merely discloses that software developers often use various editor programs in developing and testing software and that the invention of Duncan helps the programmer organize the programs into various customized windows, as described above in connection with the discussion of FIGS. 1, 2a and 2b of Duncan. Indeed, no details of the editor programs are provided, as the nature of the inventor of Duncan does not lie in the editor programs but rather organizing the editor programs. Again, it is respectfully submitted that this disclosure is not even remotely related to PLCs, programming PLCs to execute a sequential process, or interfaces for allowing a user to program a PLC to execute a sequential process.

Addressing each of the Examiner assertions in Paragraph 4 of the rejection, per the foregoing, Duncan does not teach (1) "a method . . . for programming a programmable logic controller"; (2) "a programmable logic controller including a plurality of inputs and a plurality of

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outputs"; (3) "a programmable logic controller directing a process through output signals at said outputs in response to input signals at said inputs"; and (4) "displaying to a user on a monitor a graphical user interface representing respective inputs to be monitored by said programmable logic controller at each of said sequential steps and respective outputs to be initiated by said programmable logic controller at respective ones of said sequential steps." Duncan does not teach the recited "displaying step" or features referenced therein of independent Claim 1. For at least this reason, the Examiner has not made a *prima facie* case of obviousness and, it is submitted that the rejection should be withdrawn.

After addressing Duncan, the Examiner apparently relies upon Pasquali for teaching the remaining "receiving", "converting" and "converting" steps of Claim 1. Pasquali, however, also provides no disclosure directed to PLCs or even controlling a sequential process (as alleged by the Examiner), such as a portion of an industrial process. Indeed, a search of Pasquali reveals that "PLC", "programmable" and "controller" are not used anywhere in the disclosure of Pasquali. The term "logic" is referenced twice in the disclosure: first in the definition of "Layer" in the context of a web browser (Column 6, Line 7); and second in the context of FIG. 2A in describing icons for controlling the display and appearance of a web site displayed by a browser (Column 9, Line 64; Column 9, Lines 44-66). Generally, Pasquali appears to teach a method and system that allows for web page content to be displayed in a windows environment, thereby allowing, for example, for moving, resizing, minimizing, and maximizing operations to be performed on the content. The portions of Pasquali cited by the Examiner (Column 11, Lines 39-56; Column 12, Lines 1-25) are not related to Applicant's claimed programming method. The portion of Column 11 cited by the Examiner describes the creation of a database table for defining the screen position for window modules (i.e., web page content in windows) that are created by the system of Pasquali. This disclosure provides nothing with respect to controlling a sequential process (with a PLC or otherwise) by monitoring inputs and providing outputs, and the created data table is likewise unrelated. The second portion of Pasquali cited and relied upon

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by the Examiner (Column 12, Lines 1-25) merely shows the script for generating the aforementioned data table.

Addressing the Examiner's assertions in Paragraph 4 with respect to Pasquali, because Pasquali does not teach anything with respect to PLCs or programming PLCs, Pasquali does not teach the steps recited in Claim 1 of: (a) receiving, via said graphical data entry user interface, an identification of at least one input selected by said user to be monitored for at least one of said sequential steps and an identification of at least one output selected by said user to be initiated for said at least one of said sequential steps; (b) converting said identification of said at least one input selected by said user into an input control data table, said input control data table including a plurality of input control data elements, each of said input control data elements corresponding to a respective one of said plurality of sequential steps, a respective one of said input control data elements representing said at least one input selected by said user; and (c) converting said identification of said at least one output selected by said user into an output data table, said output data table including a plurality of output data elements, each of said output data elements corresponding to a respective one of said plurality of sequential steps; a respective one of said output data elements representing said at least one output selected by said user.

In summary, neither the disclosure of Duncan nor the disclosure of Pasquali are remotely related to PLCs or methods of programming PLCs. Respectfully, neither Duncan nor Pasquali, or the combination thereof, teach or suggest any of the steps recited by independent Claim 1 for programming a PLC. It is submitted, therefore, that the Examiner has not made a *prima facie* case of obviousness and Claim 1 is not obvious from Duncan and Pasquali, or any of the art of record, and is allowable. Claims 2-8 depend from Claim 1 and are also allowable. Reconsideration and withdrawal of this rejection are respectfully requested.

Independent Claims 9 (directed to an apparatus for programming a PLC), 17 (directed to a computer-readable medium encoded with code for programming a PLC) and 20 (directed to a computer data signal in a carrier wave encoded with code for programming a PLC) parallel

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Claim 1 and, it is submitted, are allowable for at least the reasons set forth above. Claims 10-16, 18-19, and 21-22 depend from independent Claims 9, 17 and 20, respectively, and are also allowable. Reconsideration and withdrawal of this rejections are respectfully requested.

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IV.   Conclusion

In view of the foregoing remarks and amendments, Applicant submits that this application is in condition for allowance at an early date, which action is earnestly solicited.

The Assistant Commissioner for Patents is hereby authorized to charge any additional fees or credit any excess payment that may be associated with this communication to deposit account **04-1769**.

Respectfully submitted,

Dated: ___May 7, 2004___   _____
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